MODULE DESCRIPTION

Abbr.	Description	Lecturer
BA_G5	**Dynamics and Hydromechanics**	**Zhang / Jensen**

Position in the study progress, time extent, credit points	Module responsible
3. Semester, 5 SWH, 6 CP	Jensen

Applicability, offer frequency

Study program:	Bachelor	Module type:	Obligatory	Offer:	Yearly

Admission requirements for examination

Approved home works.

Achievement and examination forms, requirements, work expenditure, credit points

Form of achievement	Requirements	Work expenditure	CP	Mark weights
Presence, self-study		140 h		
Home works	Written elaborations and approved home works in dynamics	20 h		
	Written elaborations and approved home works in hydromechanics	20 h		
Examination	Examination, duration 3,5 h			100 %
	Sum	**180 h**	**6**	**100 %**

Which technical, methodical and practical contents will be conveyed?

- Introduction into kinetics and dynamics
- Kinematics and kinetics of a mass point
- Kinematics and kinetics of rigid bodies
- Physical properties of water
- Hydrostatics (hydrostatic pressure, Archimedes' principle, pontoons, acceleration systems)
- Hydrodynamics (continuity equation, potential theory, principle of energy, Bernoulli equation, momentum)
- Positive surge and negative surge (wave velocity)
- Sub-critical flow and supercritical flow, hydraulic jump (open channel)
- Laminar and turbulent flows
- Applications to pipe and channel hydraulics
- Laboratory exercises to hydromechanics

Which technical/methodical competence and key qualifications should be gained?

The students should learn fundamental knowledge on kinematics and dynamics of solids.

They should gain the foundations of hydromechanics in theory and practice as well as the reliable

of the calculation methods for solving hydraulic or hydro-mechanical problems. In the framework of the

laboratory exercises, the abilities of the students for team works and communications should be in addition

trained. Besides, special practical relevance is conveyed by exercises.